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gives a density of 235·8 per square mile or 91·9 per square kilometre.[13] This density is among the highest in Africa, south of the Sahara.[14] What may we infer from these figures as regards the population at the beginning of this century? According to the available statistics for the last fifteen years, when the circumstances are favourable the yearly increase of Ruanda population may reach three per cent. This increased ratio could hardly have been maintained over the whole of the last fifty years, mainly because the 'favourable circumstances' refer to medical amenities, new hygienic practices and the reduction of famine. Such conditions were by no means prevalent when the Europeans occupied the country in 1899.[15] Even since 1935, however, events have not always been favourable, as for three years (1941–2–3) there was a decrease of population due to a severe scarcity of food. Consequently it seems safe to assume that during the decades preceding the European occupation, the population was already very dense. According to Captain Bethe, it numbered about 2,000,000 in 1899.[16] In 1907, Czekanowski estimated the Ruanda population at approximately 1,710,000.[17]

According to a detailed survey made by the Department of Agriculture, there are about 60,000 to 70,000 families (out of a total of about 380,000 families) more than can be adequately fed by the country.[18] There is also an excess of cattle. In 1950 there

[13] There is a census for the male and able-bodied adults who are taxpayers. To obtain the total number of the population (females, old people, and children) the number of taxpayers in each administrative district is multiplied by a certain coefficient which is determined in each case by a sample-census of a few hills.

[14] For comparative purposes, there are a few density figures for some African territories according to present political boundaries: Uganda: 52·8 per square mile; Tanganyika: 20·7; Belgian Congo: 12·9; Nigeria: 92·0; Sierra Leone: 66·5. All these figures, taken from Hailey, 1957, p. 143, refer to the years 1948-52.

[15] Captain Bethe, a German officer, obtained from the king in 1899 Ruanda's acceptance of the Imperial Government's protection. There was no treaty, only an oral agreement which was followed by a permanent occupation by the German authorities. The first Christian mission was established in 1900, at Issavi, by the White Fathers. Belgian troops took possession of Ruanda during the First World War in 1916. The Belgian occupation of Ruanda-Urundi was confirmed by the Orts-Milner Agreement in 1919. In 1924, Belgium agreed to administer Ruanda-Urundi under the supervision of the Permanent Mandates Commission of the League of Nations. After the Second World War, Ruanda-Urundi became a United Nations Organization Trusteeship Territory administered by Belgium. Cf. Jentgen, 1947, pp. 9-11, 83-9

[16] Quoted by Czekanowski, 1917, p. 109 n. [17] See Czekanowski, 1917, p. 114.

[18] This study is based on an estimate of the optimum cultivated area needed by a family, the quality of the soil being taken into account. A similar method has been used in the case of cattle. Cf. Ministère des Colonies, 1951b, pp. 343-7.

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It should also be pointed out that the supply of the staple foods was usually short at the end of the dry season and that starvation periods, in which many people died, were occurring several times in a life-time. For instance in a thirty-year period (1900–30) among the events used as references to assess the age of people, three famines are remembered: in 1908, 1918, and 1924.

The above considerations take into account only the total production of available food in the country. But it is obvious that in a society composed of several groups very unequal in power, access to food was not the same for everybody. It seems that we may safely infer that the normal diet of many Hutu was barely adequate to sustain people who had to spend a considerable amount of physical effort in agricultural tasks.

In the preparation of meals, two facts relevant to health should be mentioned. Firstly, the methods of cooking very often resulted in a diminution of the nutritive value of food. For instance, beans cooked in water lose from one-sixth to one-fifth of their carbohydrates.[27] Secondly, the standards of cleanliness in food preparation were very high among the Tutsi, though more for magical than for hygienic reasons. This applies particularly to milk. To avoid flies and dust, receptacles containing milk were always closed with basketwork conic covers adorned with elongated geometric patterns. It is believed that if milk comes into contact with anything impure, the cow would be harmed. The contaminating substances were not always connected with the Western idea of dirtiness. For instance water was considered dangerous to milk. Consequently the wooden vessels in which milk was kept were not washed out with water but with cows' urine.

The equatorial situation of Ruanda, combined with the rather cold climate due to its elevation, resulted in the spreading of diseases characteristic of tropical as well as of temperate regions. Yaws, typhoid fever, tuberculosis, recurring fevers, and a large variety of intestinal diseases are quite common in Ruanda today.[28] They are not new diseases resulting from new conditions introduced by the European occupation, such as malaria, which was unknown in Ruanda except in the narrow strip adjacent to the Ruzizi River until roads were built permitting a very rapid transportation of people, or some venereal diseases which spread

[27] Ministère des Colonies, 1951b, p. 49-51.
[28] Cf. Lestrade, 1955; Vincent, 1953, pp. 16-18.